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### Amendments to the Claims

1. (Currently amended): A chemical mixing system for making preparing a slurry having a desired insoluble solids content within a qualification range, said chemical mixing system resulting from mixing at least first and second chemical components comprising:
  - (a) a mix vessel containing a mix volume suitable for preparing the slurry from at least first and second chemical components, wherein at least one of the chemical components comprises insoluble a plurality of solid particles, and wherein the mix volume is adapted to receive the chemical components from at least first and second component sources, respectively;
  - (b) a control system responsive to information comprising a measured conductivity value comprising a first conductivity sensor at a position effective to detect when a defined amount of one of the chemical components is added to the mix volume and a conductivity probe at a position effective to detect when a combined amount of the chemical components has the desired insoluble solids content at a measured conductivity value, of the slurry, wherein the said control system generates a control signal to control the addition of at least one of the chemical components to the mix volume when a slurry is prepared so that the addition of the at least one chemical component can be ceased when the slurry has a measured conductivity value corresponding to the a reference conductivity; and
  - (c) at least one valve disposed in the chemical mixing system at a position effective to regulate the amount of the at least one chemical component added to the mix volume, wherein the at least one control valve is actuated in response to information comprising by the valve control signal generated by the control system and operative to vary the rate of addition of the at least one chemical component in response to the measured conductivity value of the slurry;
  - (d) a recirculation loop; and
  - (e) a slurry having an desired insoluble solids content.
2. (cancelled)

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3. (cancelled)

4. (Previously amended): The chemical mixing system of claim 1, wherein at least a portion of an internal surface of the mix volume vessel comprises a corrosion resistant material selected from the group consisting of an ultra high molecular weight polyethylene, a fluorinated polymer, and polypropylene.

5. (Original) The chemical mixing system of claim 4, wherein the corrosion resistant material is a fluorinated polymer selected from the group consisting of a perfluoralkoxy polymer, polytetrafluoroethylene, fluorinated ethylene propylene, polyvinylidene fluoride, ethylene tetrafluoroethylene, and chlorotrifluoroethylene.

6. (cancelled)

7. (cancelled)

8. (Currently amended) The chemical mixing system of claim 1, wherein the first conductivity sensor is located at the mix vessel.

9. (Currently amended): The chemical mixing system of claim 17, wherein the first conductivity sensor is located in the recirculation loop.

10. (Currently amended): The chemical mixing system of claim 1 2, wherein the conductivity probe is located at the mix vessel.

11. (Currently amended): The chemical mixing system of claim 1 2, wherein the conductivity probe is located in the recirculation loop.

12. (Previously amended): The chemical mixing system of claim 1, further comprising a pump operationally coupled to the chemical mixing system to motivate the chemical components through the system.

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13. (Previously amended): The chemical mixing system of claim 1, further comprising a discharge line for transmitting the slurry from the mix vessel to a point of use.

14-21. (cancelled)